

TE-6300 Series Temperature Sensors

Description

The TE-6300 Temperature Sensor line provides economical solutions for a wide variety of temperature sensing needs, including wall-mount, outdoor-air, duct, strap-mount, well-insertion, duct-averaging, and Variable Air Volume (VAV) flange-mount duct-probe applications. The TE-6300 line offers both a metal and a plastic enclosure for the most popular models.

Sensors are available in the following types:

- 1k ohm thin-film nickel
- 1k ohm nickel averaging
- 1k ohm thin-film platinum
- 100 ohm platinum equivalent averaging
- 1k ohm platinum equivalent averaging
- 2.2k (2,252) ohm thermistor
- 10k ohm thermistor, Johnson Controls® Type II

Each sensor is packaged with the necessary mounting accessories to maximize ordering and installation ease and reduce both commissioning time and cost.

Refer to the *TE-6300 Temperature Sensors Product Bulletin (LIT-216320)* for important product application information.

Features

- full line of versatile sensors — supports all your temperature sensing needs from a single supplier: wall mount, outdoor air, duct probe, duct averaging, strap-mount, well insertion, and flange mount duct probe
- single assembly ordering — simplifies ordering; provides a complete assembly in one box
- models featuring an integral NPT Adaptor — increase sensor connection strength, which eliminates the need for a special adaptor
- models with a stainless steel sensor probe — protect the sensor while increasing corrosion resistance
- metal enclosure (TE-63xxM Models only) — meets plenum requirements
- models featuring a retainer for the sensor holder — allow you to lock the sensor holder into the conduit box
- brushed stainless steel mounting plate — offers a durable, aesthetically pleasing design
- low profile flush mount design — provides a tamper-proof installation ideally suited for schools, sporting complexes, retailers, prisons, and more

All TE-6300 series sensors are two-wire, passive, resistance output devices.

TE-63xxA Models

The TE-63xxA (adjustable length) models:

- provide a thermoplastic mounting flange and gland nut to adjust the length of the probe

- include two hex-head self-drilling screws for mounting
- come equipped with a 10 ft (3 m) plenum-rated cable with 1/4 in. (6.35 mm) female insulated quick-connect terminations on leads

TE-63xxF Models

The TE-63xxF (flush mount) models:

- provide a low profile when installed in an electrical box
- feature thermally isolated sensor from the wall with a foam pad
- offer a rugged stainless steel cover
- provide 22 AWG lead wires with low voltage installation

TE-63xxM Models

The TE-63xxM (metal enclosure) models:

- come with a corrosion-protected steel enclosure with a 0.88 in. (22 mm) hole for a 1/2 in. (12.7 mm) conduit fitting
- include two hex-head self-drilling screws for mounting the duct and duct averaging models
- offer (well models only) either a direct mount or 1/2-14 NPT threaded well sensor holder for mounting in TE-6300W Series thermal wells (Order the thermal well separately.)
- provide optional well sensor holders (order separately) to mount duct models in thermal wells.
- meet UL 1995 plenum use requirements
- offer optional accessory kit (order separately) to replace plastic hole plug and wiring bushing to meet International Mechanical Code (IMC) requirements

TE-63xxP Models

The TE-63xxP (plastic enclosure) models:

- provide a thermoplastic conduit box with 1/2-14 NPT female thread for connecting to conduit
- provide aluminum mounting plate and 1/2-14 NPT threaded hub mounting options for the duct and duct averaging models
- use the 1/2-14 NPT female thread to mount the Outdoor Air models directly to ridged conduit
- provide optional sensor holders (order separately) to mount duct models in thermal wells
- offer an optional accessory metal cover kit (order separately) to replace the plastic cover to meet UL 1995 plenum use requirements
- include a replaceable sensing probe on duct probe, outdoor air, and well insertion models

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TE-63x4P Wall Mount Models

The TE-63x4P (plastic enclosure) models:

- come with a white thermoplastic ventilated cover with a brushed aluminum face plate and a steel mounting plate for surface mounting
- include faceplates for both horizontal and vertical mounting
- offer an accessory mounting kit for mounting to a standard electrical box
- offer optional covers

TE-63xS Models

The TE-63xS (Strap-Mount) models:

- provide a 1/4 in. (6.35 mm) diameter stainless steel probe without an enclosure
- include three cable ties for mounting to pipe up to 2-5/8 in. (67 mm) diameter
- come equipped with a 10 ft (3 m) plenum rated cable
- meet UL 1995 plenum use requirements
- offer an accessory mounting kit for mounting to a pipe up to 11 in. (280 mm) diameter

TE-63xxV Models

The TE-63xxV (VAV flange mount) models:

- provide a stainless steel mounting flange with two hex-head self-drilling mounting screws
- come equipped with a 10 ft (3 m) plenum rated cable with 1/4 in. (6.35 mm) female insulated quick-connect terminations on leads
- meet UL 1995 plenum use requirements

Repair Information

If the TE-6300 Series Temperature Sensor fails to operate within its specifications, refer to the *TE-6300 Series Temperature Sensors Product Bulletin (LIT-216320)* for a list of repair parts available.

TE-6300 Series Temperature Sensors (Continued)

Selection Chart

TE-6300 Temperature Sensor Models (Part 1 of 2)

Sensor	Mounting Style	Probe Length in. (mm)	Product Code Number
Nickel (1k ohm)	Adjustable ¹ Averaging	8 (203)	TE-6311A-1
		8 ft (2.4 m)	TE-6315M-1
			TE-6315P-1
			TE-6315V-2 ¹
		17 ft (5.2 m)	TE-6316M-1
			TE-6316P-1
	TE-6316V-2 ¹		
	Duct	4 (102)	TE-631GM-1
		8 (203)	TE-6311M-1
		18 (457)	TE-6311P-1
	Flange	4 (102)	TE-631JM-1
		8 (203)	TE-631GV-2
	Flush	N/A	TE-6310F-0
			TE-6310F-1
	Outdoor Air	3 (76)	TE-6313P-1
	Strap-Mount	3 (76)	TE-631S-1
	Wall ²	N/A	TE-6314P-1
	Well	6 (152)	TE-631AM-1 ³
			TE-631AM-2
			TE-631AP-1
8 (203)		TE-6312M-1	
		TE-6312P-1	
Platinum (1k ohm)	Adjustable	8 (203)	TE-6351A-1
	Duct	4 (102)	TE-635GM-1
		8 (203)	TE-6351M-1
		18 (457)	TE-6351P-1
	Flange	4 (102)	TE-635JM-1
		8 (203)	TE-635GV-2
	Flush	N/A	TE-6350F-0
			TE-6350F-1
	Strap-Mount	3 (76)	TE-635S-1
	Outdoor Air	3 (76)	TE-6353P-1
	Wall ²	N/A	TE-6324P-1
	Well	6 (152)	TE-635AM-1 ³
			TE-635AM-2
			TE-635AP-1
		8 (203)	TE-6352M-1
			TE-6352P-1

TE-6300 Temperature Sensor Models (Part 2 of 2)

Sensor	Mounting Style	Probe Length in. (mm)	Product Code Number	
Platinum Equivalent	1k ohm Averaging ¹	10 ft (3 m)	TE-6327P-1	
		20 ft (6.1 m)	TE-6328P-1	
	100 ohm Averaging ¹	10 ft (3 m)	TE-6337P-1	
		20 ft (6.1 m)	TE-6338P-1	
Thermistor (2.2k ohm)	Adjustable	8 (203)	TE-6341A-1	
	Duct	8 (203)	TE-6341P-1	
	Flange	4 (102)	TE-634GV-2	
		8 (203)	TE-6341V-2	
	Outdoor Air	3 (76)	TE-6343P-1	
	Wall ²	N/A	TE-6344P-1	
	Well	8 (203)	TE-6342M-1	
		6 (152)	TE-634AM-2	
	Thermistor (10k ohm) Type II	Adjustable	8 (203)	TE-6361A-1
		Duct	4 (102)	TE-636GM-1
8 (203)			TE-6361M-1	
18 (457)			TE-6361P-1	
TE-636JM-1				
Flange		4 (102)	TE-636GV-2	
		8 (203)	TE-6361V-2	
Flush		N/A	TE-6360F-0	
			TE-6360F-1	
Outdoor Air		3 (76)	TE-6363P-1	
Strap-Mount		3 (76)	TE-636S-1	
Well		6 (152)	TE-636AM-1 ³	
			TE-636AM-2	
8 (203)		TE-6362M-1		

- Two TE-6001-8 Element Holders come with the platinum equivalent averaging sensors. Order separately to use with a nickel averaging sensor.
- Order the TE-1800-9600 Mounting Hardware separately to mount the wall unit to a wallbox.
- TE-631AM-1, TE-635AM-1, and TE-636AM-1 include TE-6300-612 brass threadless well adaptor for retrofit to TE-6300W-103 or WZ-1000-5 thermowells.

Optional Accessories (Part 1 of 2)

Product Code Number	Description
F-1000-182	Thermal Conductive Grease for element wells (8 oz.)
T-4000-119	Allen Head Tool for Wall Mount Cover Screws (order in multiples of 30)
TE-1800-9600	Mounting Hardware for mounting the wall mount unit to a wall box
TE-6001-8	Element Holder for mounting an averaging sensor (order in multiples of 10)
TE-6001-13	Metal Cover and Gasket Kit (5 per package)
TE-6300-101	12 in. (305 mm) (1k ohm) Nickel Probe (cut to an appropriate length) ¹
TE-6300-103	1/2-14 NPT Plastic Sensor Holder without retainer (order in multiples of 10)
TE-6300-105	12 in. (305 mm) (1k ohm) Platinum Class A Probe (cut to an appropriate length) ¹
TE-6300-601	8 in. (203 mm), 1k ohm Nickel Probe
TE-6300-603	3 in. (76 mm), 1k ohm Nickel Probe

TE-6300 Series Temperature Sensors (Continued)

Optional Accessories (Part 2 of 2)

Product Code Number	Description
TE-6300-605	Sensor Holder/Well Adaptor, Plastic, 1/2-14 NPT, for use with TE-6300W-110 (replacement part, included with TE-63xxP-1)
TE-6300-606	8 in. (203 mm), 2.2k ohm Thermistor Probe
TE-6300-607	3 in. (76 mm), 2.2k ohm Thermistor Probe
TE-6300-608	NCT Thermistor Sensor with 8 ft (2.4 m) Leads
TE-6300-609	Sensor Holder/Well Adaptor, Plastic, Threadless, for use with TE-6300W-103 (replacement part, included with TE-63xAP-1)
TE-6300-610	NCT Thermistor Sensor with 12 ft (3.7 m) Leads
TE-6300-611	1/2-14 NPT Threaded Brass Sensor Holder (Order in multiples of 10)
TE-6300-612	Threadless Brass Sensor Holder (Order in multiples of 10)
TE-6300-613	IMC Kit, Metal Knockout Plug, Metal Clamp Connector (order in multiples of 10)
TE-6300-614	Cable Tie Mounting Kit, 0.50 to 2.625 in. (12.7 to 66.7 mm) Bundle Diameter (10 per package)
TE-6300-615	Cable Tie Mounting Kit, 11 in. (280 mm) Maximum Bundle Diameter
TE-6300-616	8 in. (203 mm) 1k ohm Platinum Class A Probe
TE-6300-617	3 in. (76 mm) 1k ohm Platinum Class A Probe
TQ-6000-1	4 to 20 mA Output Transmitter for use with the 100 ohm platinum sensor
TE-6300W-101	6 in. (152 mm) Brass Well (direct mount with thermal grease included)
TE-6300W-102	6 in. (152 mm) Stainless Steel Well (direct mount)
TE-6300W-103	6 in. (152 mm) Brass Well, 1/2 in. – 14 NPT outside pipe thread (with thermal grease, requires sensor with adapter)
TE-6300W-110	8 in. (203 mm) Stainless Steel Well

1. Cut 12 in. probes to a minimum of 3 in. (76 mm).

T-4000 Covers Available for the Wall Mount TE-63x4P Series

Product Code Number	Horizontal Johnson Controls Logo	Vertical Johnson Controls Logo	Thermometer, with °F/°C Scale	Faceplate/Cover Color
T-4000-2138 ¹				Brushed Aluminum/Beige
T-4000-2139	■			
T-4000-2140	■		■	
T-4000-2144		■		
T-4000-2639	■			Brown and Gold/Beige
T-4000-2640	■		■	
T-4000-2644		■		
T-4000-3139	■			Brushed Aluminum/White
T-4000-3140	■		■	
T-4000-3144		■		

1. Without Johnson Controls logo

Technical Specifications

TE-6300 Series Temperature Sensors (Part 1 of 3)		
Sensor Reference Resistance	1k ohm Nickel	1k ohms at 70°F (21°C)
	1k ohm Nickel Averaging	
	1k ohm Platinum	1k ohms at 32°F (0°C)
	100 ohm Platinum Averaging	100 ohms at 32°F (0°C)
	1k ohm Platinum Averaging	1k ohms at 32°F (0°C)
	2.2k ohm Thermistor	2,252 ohms at 77°F (25°C)
	10k ohm Thermistor	10.0k ohms at 77°F (25°C)
Sensor Accuracy	1k ohm Nickel	±0.34F° at 70°F (±0.19C° at 21°C)
	1k ohm Nickel Averaging	±3.4F° at 70°F (±1.9C° at 21°C)
	1k ohm Platinum Class A	EN 60751 Class A, ± [0.15 + 0.002 * T °C], ±0.19C° at 21°C (±0.35F° at 70°F)
	100 ohm Platinum Class A	EN 60751 Class A, ± [0.15 + 0.002 * T °C], ±0.19C° at 21°C (±0.35F° at 70°F)
	1k ohm Platinum Class B	EN 60751 Class B, ± [0.30 + 0.005 * T °C], ±0.41C° at 21°C (±0.73F° at 70°F)
	100 ohm Platinum Averaging	±1.0F° at 70°F (± 0.58C° at 21°C)
	1k ohm Platinum Averaging	
	2.2k ohm Thermistor	±0.36F° (±0.2C°) in the range: 32 to 158°F (0 to 70°C)
10k ohm Thermistor	±0.9F° (±0.5C°) in the range: 32 to 158°F (0 to 70°C)	

TE-6300 Series Temperature Sensors (Continued)

TE-6300 Series Temperature Sensors (Part 2 of 3)		
Sensor Temperature Coefficient	1k ohm Nickel	Approximately 3 ohms/F° (5.4 ohms/C°)
	1k ohm Nickel Averaging	
	1k ohm Platinum	Approximately 2 ohms/F° (3.9 ohms/C°) 3,850 ppm/K
	100 ohm Platinum Averaging	Approximately 0.2 ohms/F° (0.39 ohms/C°)
	1k ohm Platinum Averaging	Approximately 2 ohms/F° (3.9 ohms/C°)
	2.2k ohm Thermistor	Nonlinear, Negative Temperature Coefficient (NTC)
	10k ohm Thermistor	Nonlinear NTC, Johnson Controls Type II
Electrical Connection	TE-63xxM	22 AWG (0.6 mm diameter) x 6 in. (152 mm) long
	TE-63xxP	
	TE-63xxF	22 AWG (0.6 mm diameter) x 12 ft (3 m) braided-copper wires, low voltage insulation, half-stripped ends
	TE-63xxP Nickel Averaging	18 AWG (1.0 mm diameter) x 6 in. (152 mm) long
	TE-63xS	22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable
	TE-63xxA, TE-63xxV	22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable with 0.25 in. (6.35 mm) female quick-connect terminals
Materials	Probes	Nickel Averaging: 0.094 in. (2.4 mm) Outside Diameter (O.D.) copper tubing Nickel Averaging Adaptor: 0.25 in. (6.35 mm) O.D. Brass Platinum Averaging Probe: 0.19 in. (4.8 mm) Aluminum tubing All others (except Averaging): 0.25 in. (6.35 mm) O.D. Stainless Steel
	TE-63xxA	Mounting Adapter Plate and Gland: Thermoplastic
	TE-63xxF	Flush Mount: Stainless Steel
	TE-63xxM	Enclosure: Corrosion-Protected Steel Well Sensor Holder: 0.875 in. (22.2 mm) Hex Brass
	TE-63xxP	Conduit box and Shield: Rigid Thermoplastic Mounting Plate: Aluminum Sensor Holder: Rigid Thermoplastic Wall Mount Base Plate: Corrosion-Protected Steel Wall Mount Cover: Rigid Thermoplastic (White) Wall Mount Face Plate: Brushed Aluminum
	TE-63xxV	Mounting Flange: Stainless Steel
Operating Conditions	TE-63xxA	-50 to 140°F (-46 to 60°C)
	TE-63xxF	32 to 104°F (0 to 40°C)
	TE-63xxM	-50 to 220°F (-46 to 104°C)
	TE-63xxP	Enclosure: -50 to 122°F (-46 to 50°C) Sensor Probe: -50 to 220°F (-46 to 104°C)
	TE-63xS	Sensor Probe: -50 to 220°F (-46 to 104°C)
	TE-63xxV	Wire Harness: -50 to 122°F (-46 to 50°C)
Shipping Weight	TE-63xxA	0.2 lb (0.09 kg)
	TE-63xxF	0.25 lb (113.4 kg)
	TE-63xxM	Duct Averaging: 0.9 lb (0.41 kg) Duct Mount: 0.4 lb (0.18 kg) Well Insertion: 0.5 lb (0.23 kg)
	TE-63xxP	Duct Averaging: 0.5 lb (0.23 kg) Duct Mount: 0.4 lb (0.18 kg) Outdoor Air: 0.5 lb (0.23 kg) Wall Mount: 0.2 lb (0.09 kg) Well Insertion: 0.35 lb (0.16 kg)
	TE-63xS	Strap-Mount: 0.2 lb (0.09 kg)
	TE-63xxV	Duct Averaging: 0.7 lb (0.32 kg) Duct Mount: 0.2 lb (0.09 kg)

TE-6300 Series Temperature Sensors (Continued)

TE-6300 Series Temperature Sensors (Part 3 of 3)		
Dimensions (H x W x D)	TE-63xxA	2.17 in. (55 mm) diameter plus 4 or 8 in. (102 or 203 m) element
	TE-63xxF	Flush Mount: 4-1/2 x 2-3/4 in. (114 x 70 mm)
	TE-63xxM	Duct Averaging: 1.87 x 1.87 x 1.80 in. (47.5 x 47.5 x 45.8 mm) plus 8 or 17 ft (2.4 or 5.2 m) element Duct Mount: 1.87 x 1.87 x 1.80 in. (47.5 x 47.5 x 45.8 mm) plus 4, 8, or 18 in. (102, 203, or 457 mm) element Well Insertion: 1.87 x 1.87 x 1.80 in. (47.5 x 47.5 x 45.8 mm) plus 6 or 8 in. (152 or 203 mm) element
	TE-63xxP	Duct Averaging: 5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 8, 10, 17, or 20 ft (2.4, 3.0, 5.2, or 6.1 m) element Duct Mount: 5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 6 or 8 in. (152 or 203 mm) probe Outdoor Air: 5.97 x 3.47 x 4.46 in. (152 x 88 x 113 mm) Wall Mount: 2.09 x 3.12 x 1.80 in. (53 x 79 x 46 mm) Well Insertion: 5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 6 or 8 in. (152 or 203 mm) probe
	TE-63xS	Strap-Mount: 0.25 in. (6.35 mm) diameter x 3.00 in. (76 mm.) long
	TE-63xxV	Duct Averaging: 2.25 x 1.50 in. (57 x 38 mm) plus 8 or 17 ft (2.4 or 5.2 m) element Duct Mount: 2.25 x 1.50 in. (57 x 38 mm) plus 4 or 8 in. (102 or 203 m) element